Aufgabe: the scholarly type of mind might be expected to be slow in the Hard Directions Test, which demands rapid shift of attention and problem.

As an index of the presence of the kind of mental ability likely to produce high marks, the results of several tests taken together are most significant. There were eleven students who fell in the last quarter in three or more tests. Of these none quite reached average class standing (51.1): the rankings were 50, 50, 43, 45, 36, 33, 27, 24, 24, 21, 18. Of seven students who were in the last quarter in two tests, none reached average class standing.

There were seven students who were in the first quarter in four tests. One of these, whom we will call T., had only an average class standing: the standings of the others were 63, 66, 75, 87, 90, 90.

There were eight students who were in the first quarter in three tests. One of these (M.), had a class standing slightly below the average, namely, 48; one (W.) was just average; the standings of the others were 60, 75, 75, 78, 81, 84.

Thus it appears that excellent performance in several tests usually goes with excellent performance throughout the work of the freshman year; while very poor performance in several tests is correlated with a performance below the average in the work of the freshman year.

We obtained, finally, some interesting data connecting the test results with the commendation of certain students as especially 'promising' by their instructors. There were 88 students thus commended. Of these not one was found in the lowest quarter of excellence in more than one test. On the other hand, of the seven students who stood in the first quarter in four tests, every one was commended for promise, including the one (T.) whose class standing was only average. Of the eight students who were in the first quarter in three tests, six were commended for promise, including one (W.) whose class standing was only average.

XXXII. Directed Recall of Pleasant and Unpleasant Experiences

By Mildred F. Baxter, Koto Yamada, and M. F. Washburn

The motive which led the senior author of this study to devise its method was the desire to explore possibilities of testing the temperamental characteristics of individuals. As might be expected from the great difficulty attending such investigations, the most definite results of the study relate not to individual psychology but to general psychology. However, we do not feel wholly discouraged with the results from the point of view of individual psychology.

Briefly, we wanted to see whether we could get anything like a test of the 'optimistic' or 'pessimistic' tendencies of individuals from the readiness with which, under definite instructions to do so, they recall pleasant and unpleasant personal experiences. The method was as follows.

The observer was first put through a practice series in ordinary free associations, the first thirty words of the Kent-Rosanoff series being used as stimulus words. The association times were taken with a stop-watch. Then the following instructions were given: "I shall now give you two other series of stimulus words. To the first

set you are to respond by rapping on the table as soon as the word has suggested an unpleasant personal experience which you have actually had in connection with the thing signified by the word. For the second series you are to respond in a similar way when the word has suggested a pleasant personal experience. If you fail to recall such experiences within fifteen seconds I shall give you the next stimulus word. I shall give you five words from the first series, then five from the second, then five from the first, and so on in alternation. Before changing from one series to another I shall give you the signal 'pleasant' or 'unpleasant.'" The reaction times were taken with a stop-watch. After each response, the question was asked, "Was the unpleasantness (or pleasantness) you thought of physical or mental?" The stimulus words used were sixty more from the Kent-Rosanoff series, thirty each for the pleasant and unpleasant recalls. In order to eliminate the possibility that one set of thirty might naturally have more pleasant or unpleasant suggestions than the other set, we used each set for the pleasant reactions with one-half the observers, and for the unpleasant reactions with the other half.

The average reaction time for the pleasant experiences in the case of a given observer was divided by her average reaction time for the unpleasant experiences. There were sixty-nine observers, young women college students. Nineteen of these gave average reaction times which were shorter for the unpleasant recalls than for the pleasant recalls. In eleven of these cases the ratio of the pleasant reaction time to the unpleasant reaction time rose above 1.2. For thirteen of the fifty observers whose average time for recalling pleasant experiences was shorter than their average time for recalling unpleasant experiences, the ratio was .75 or below. Did the former group contain the most "pessimistic" observers of our collection, and the latter group the most "optimistic?" Would a person in a gloomy mood or of a pessimistic temperament recall unpleasant experiences more quickly than a person in a cheerful mood or of an optimistic temperament? James's principle of "emotional congruity" as a determinant of association will be recalled in this connection. It might be suggested that a person in a gloomy frame of mind would have his reaction time to unpleasant recollections lengthened by the emotional disturbance they would occasion. In our experiments, single very long reaction times, such as might be regarded as complex indicators, were omitted in reckoning averages.

We selected, for each of the observers who gave a ratio of .75 or less for the average 'pleasant' reaction time divided by the average 'unpleasant' time, three persons who were well acquainted with her personal traits, and were uninformed as to the purpose of our investigation: these persons were asked, "Do you think that A. (the observer in question) tends in general to be optimistic and cheerful, or pessimistic and uncheerful?" Similar inquiries were made for each of the observers who gave a ratio of 1.2 or more. If quick recall of unpleasant ideas indicates a pessimistic temperament, then the former group were the cheerful observers, the latter group the pessimists. Twenty of the friends of the former group judged them to be temperamentally cheerful; thirteen judged them to be temperamentally uncheerful; a ratio of 1.5. Nineteen of the friends of the latter group judged them to be temperamentally cheerful; eighteen judged them to be temperamentally uncheerful; a ratio of 1.05. Thus the testimony of friends offers some confirmation of the idea that there is a positive correlation between a cheerful temperament and especially

slow recall of unpleasant ideas. Obviously the method needs further development.

More definite results appear which bear on general rather than individual psychology. In the first place, it is evident that for the majority of the observers (72%) the average time for recalling unpleasant experiences is at least slightly longer than that for recalling pleasant experiences. The difference in time is very slight, however: the average reaction time for pleasant recalls is 3.05, with a m.v. of .24; the average reaction time for unpleasant recalls is 3.35 m.v. 19. That recall of pleasant experiences occurs more readily than recall of unpleasant experiences is further indicated by the number of zero cases, or cases where the observer failed in fifteen seconds to associate any pleasant or unpleasant experience with the stimulus word. The total number of zero cases for the recall of unpleasant experiences was 144; for the recall of pleasant experiences it was only 90.

Further, a rather curious relation appeared when we reckoned the total number of cases where the pleasant or unpleasant experience recalled was reported as physical and the total number where it was reported as mental. Obviously much inexactness in the use of these terms was to be expected of our observers. The number of pleasant experiences recalled where the pleasantness was classed by the observer as mental was 733; in only 647 cases was the pleasantness classed as physical. The number of cases where the unpleasant experience recalled was classed as mentally unpleasant was only 649; the number of cases where it was classed as physically unpleasant was 734. Thus physical unpleasantness would seem to be more readily recalled than mental unpleasantness, and mental pleasantness more readily recalled than physical pleasantness. The greater readiness to recall physical rather than mental unpleasantness might be due to the fact that mental unpleasantnesses are apt to be involved with complexes and hence tend to be suppressed; quite possibly also to the fact that physical unpleasantness (usually pain) is more homogeneous than mental unpleasantness and hence easier to recall. This suggestion was made by Professor Colvin during a discussion of these results before the Columbia Psychological Club. It is hard to explain why the pleasantnesses recalled should be so much oftener mental than physical. Possibly the fact is due to a tendency to avoid recognizing that one's pleasures are physical; the habit or convention of regarding physical pleasures as unworthy and undignified.

XXXIII. Accuracy of Visual Memory and Speed of Verbal Perception in Poor Spellers

By Annette Howell, Lucile Hopson and M. F. Washburn.

The English Department of Vassar College has the custom of selecting each year a group of conspicuously bad spellers from among its students, and subjecting them to special training in spelling. It occurred to us that an opportunity was thereby offered to the Department of Psychology for an investigation of the psychological characteristics of this selected group. We have to present in the following paper the results of certain tests made upon forty-eight notably poor spellers and an equal number of good spellers. The good spellers were selected simply on their own testimony; but bad spelling seems